



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,304	07/29/2003	Alma L. Coats	14974.0002	4474

7590 09/09/2004

STEPTOE & JOHNSON LLP
Attn: Docket Administrator - Box USPTO
1330 Connecticut Avenue, NW
Washington, DC 20036

EXAMINER

HAMILTON, CYNTHIA

ART UNIT PAPER NUMBER

1752

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/628,304	Applicant(s) COATS ET AL.	
	Examiner Cynthia Hamilton	Art Unit 1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-67 is/are pending in the application.
- 4a) Of the above claim(s) 7-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-67 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-57, drawn to a liquid stereolithography resin, classified in class 430, subclass 284.1.
 - II. Claims 58-60, drawn to a method of forming a three-dimensional object with a precursor, classified in class 430, subclass 269.
 - III. Claims 61-67, drawn to a method of forming a three-dimensional object comprising imaging two layers, classified in class 430, subclass 269.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the process of using the product as claimed can be practiced with another compound instead of a polymerization modifier. Group II requires the presence of a precursor based on a performance characteristic of a finished product, wherein the performance characteristic is selected from the group consisting of hardness, flexibility, dimensional stability, clarity, toughness, elasticity, heat resistance, weather resistance and combinations thereof. There is no requirement that the "precursor" of Group II be the "polymerization modifier" of Group I. Further, with respect to the product as claimed can be used in a materially different process of using that product, the resin of Group I can be used to form heat molded automobile parts which

Art Unit: 1752

are formed in a process of overall exposure instead of selective exposure to form a solidified layer.

3. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the product as claimed can be used in a materially different process of using that product such as the resin of Group I can be used to form heat molded automobile parts which are formed in a process of overall exposure instead of selective exposure to form a solidified layer and do not require the formation of two separate layers.

4. Inventions II and III are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions start with different compositions. Group II requires the presence of a precursor, based on a performance characteristic of a finished product, wherein the performance characteristic is selected from the group consisting of hardness, flexibility, dimensional stability, clarity, toughness, elasticity, heat resistance, weather resistance and combinations thereof with the precursor combined with a urethane acrylate oligomer and an acrylate monomer. Group III requires the presence of a first urethane acrylate oligomer, a first acrylate monomer and a polymerization modifier. The compositions are different thus yielding different products when used in the claimed processes thus different effects.

Art Unit: 1752

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. This application contains claims directed to the following patentably distinct species of the claimed invention: Sub genus of compositions with photoinitiator present as in claims 2-6 Sub genus of compositions wherein broadly no such photoinitiator is required but a polyester urethane diacrylate is required present is in claims 7-8. Because applicants to not limit the broad composition of claim 1 to the presence of a photoinitiator, then the scope of the invention encompasses class 525 as well as class 522 and class 430. In class 430 the search for the composition is only one subclass, but in class 522 this is a broader range and in class 525 even broader. The addition of a multitude of components in claims 2-56 covers many possible search combinations. For this reason an election of species is required.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the

limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

7. During a telephone conversation with Mr. Harold Fox starting on August 20, 2004 and finishing with a response on August 30, 2004 a provisional election was made with traverse to prosecute the invention of I, claims 1-57 with an ultimate species election of Example 1 from the specification. **Applicant in replying to this Office action must make affirmation of this election.** Applicants also need to point out what claims in claims 1-57 read on the elected species. Claims 58-67 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

8. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

9. With respect to the elected Example 1, it is as follows from the pre publication document (US 2004/0135292):

EXAMPLE 1

[0105] A general purpose resin was prepared with the following components, which are listed both as a % by volume and as a percent by weight:

COMPONENT	% VOLUME	% BY WEIGHT
CN964E75	38.25	37.83
SR494	48	48.74
CN965	10	9.9
SR1135	1.75	1.75
TIN292	2	1.78

[0106] In this regard, it should be noted that CN964E75 and CN965 both contain urethane acrylate oligomers. SR494 is an ethoxylated pentaerythritol tetraacrylate. SR1135 is a photoinitiator and TIN292 is a stabilizer. In particular, CN964E75 includes an aliphatic urethane acrylate (75 to 90% by weight) and ethoxylated trimethylolpropane triacrylate esters (10 to 25% by weight). SR494 is an ethoxylated pentaerythritol tetraacrylate (100% by weight). CN965 is an aliphatic urethane acrylate (100% by weight). SR1135 is a mixture including 2,4,6-trimethylbenzoyldiphenylphosphine oxide, alpha hydroxyketones and benzophenone derivatives and includes 2-hydroxy-2-methyl-1-phenyl-1-propanone (22 to 26% by weight) and 2,4,6-trimethylbenzophenone (6 to 7% by weight). TIN292 can be purchased from CIBA, Inc. All of the other components are sold by Sartomer Company, Inc.

[0107] To prepare a general purpose resin, CN964E75 was blended with CN965. To this mixture was added SR 494. To this SR1135 and TIN292 were added. The final weight % of each component is described above in the table.

What is present is a mixture of photoinitiators inclusive of a phosphine oxide and a benzophenone derivative, two aliphatic urethane acrylates with no further explanation as to their identity, ethoxylated pentaerythritol tetraacrylate, i.e. SR494, a stabilizer, i.e. TIN292, and

Art Unit: 1752

ethoxylated trimethylolpropane triacrylate esters. Thus, two urethane acrylates and two other acrylates that could be considered monomers or polymerization modifiers are present in the elected species. The photoinitiator system could also be considered a polymerization modifier. There is no indication of a polyester urethane acrylate being present.

10. The disclosure is objected to because of the following informalities: On page 1, line 5, "inventio7n" should be "invention".

Appropriate correction is required.

11. The use of multiple trademarks has been noted in this application. They should be capitalized wherever they appear and be accompanied by the generic terminology. Some examples are at the bottom of page 2, SARCURE SR1135, and SARCURE SR1130E at the top of page 3, SARCURE SR1137, SARCURE SR1130, Darocur 4265, and Irgacure, on page 4, line 25, LA-32, LA-82, Chimasorb 81, and lines 27-28, Sartomer CN964 and Sartomer SR454. There are many more on pages 5-6, 10, and the Examples. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner that might adversely affect their validity as trademarks.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

Art Unit: 1752

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

13. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Modrek et al (5,076,974). With respect to instant claims 13-, the liquid stereolithographic composition of Modrek et al set forth in col. 8 line 42 to col. 9, line 13 anticipates the instant composition wherein the urethane acrylate oligomer is the instant "first urethane acrylate oligomer" and the dilute acrylate monomer is the instant "first acrylate monomer" and a photoinitiator is present. The epoxy resin diacrylate, the trimethacrylate ester and the propoxylated diacrylate are all instant polymerization modifiers.

14. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hagiwara et al (5,849,459). With respect to instant claims 1-5, the composition of Hagiwara et al at col.10 and Reference Example 1 anticipates the instant composition wherein (1) is the instant first urethane acrylate oligomer and either polyethylene glycol 200 diacrylate or ethylene oxide-modified trimethylolpropane triacrylate is the instant first acrylate monomer or the polymerization

Art Unit: 1752

modifier or one is the second acrylate monomer with the Irgacure 651 being the photoinitiator, i.e. the instant polymerization modifier. With respect to instant claim 6, the process of Example 1 of Hagiwara et al makes use of the Reference Example 1 resin at wavelength 354, 365 nm thus showing the composition of Hagiwara et al is activated in a wavelength rang of 360-380 nm.

15. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Tamura et al (6,017,973). With respect to instant claims 1-2, the compositions of Tamura et al set forth in col. 35, lines 7-56 anticipate the instant composition. Wherein mono acrylates or monomethacrylates are set forth in Table 3, Irgacure 651, i.e. 2,2-dimethoxy-2-phenylacetophenone is the polymerization modifier and the achromatic urethane acrylate of formula (1) of Tamaura et al is the instant first urethane acrylate oligomer.

16. Claims 1-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Cantor (6,080,450). With respect to instant claims 1-6, Examples 1 and 2 of Cantor anticipate the instant composition wherein the composition is poured therefore liquid. Darocur 1173 and 4265 are the instant phosphine oxides. Acrylic acid is the polymerization modifier the polyurethane acrylate oligomer is the instant first urethane acrylate oligomer and isobornyl acrylate is the instant first acrylate monomer. Iragacure 184, i.e. 1-hydroxyl cyclohexyl phenyl ketone is the photoinitiator as well as a polymerization modifier.

17. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyata et al (3,954,584). The photopolymerizable vinylurethane liquid compositions of Miyata et al set forth in Table 2 anticipate the instant liquid stereolithography resins. The examiner holds "stereolithography" to be an intended use of the compositions. The body of the claim is seen by the examiner to fully and intrinsically set forth all of the limitations of the claimed invention,

rather than any distinct definition of any of the claimed invention's limitations and "stereolithography" is of no significance to claim construction. *Pitney Bowes, Inc. v. Helwett-Packard Co.*, 182 F.3d 1298, 1305, 51 UAPQ2d 1161, 1165 (Fed. Cir. 1999). See also *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) and MPEP 2111.02.

18. Claims 7-57 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant has provisionally traversed the restriction (election) requirement at this time.

19. Further clarification with respect what claims read on the elected species by applicants will be taken into consideration by the examiner in the next office action. However, the lack of clear indication what many of the compounds are in the elected species has made it difficult for the examiner to determine what claims read on the elected species.

20. Claims 4-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 contains the trademark/trade names SARECURE SR1135, SARCURE SR1130E, SARCURE SR1137, SARECURE SR1130, Darocur 426 and Irgacure. Claim 5 contains trademark/trade name of Darocur 426. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name.

Art Unit: 1752

In the present case, the trademark/trade name is used to identify/describe some form of photoinitiator and, accordingly, the identification/description is indefinite.

21. The examiner notes that applicants have used a host of such trademark/trade names in the withdrawn claims as well. Thus, if these claims were to be examined the same issue of indefiniteness would arise with each one.

22. Applicants are required to set forth the claims from Group I in the election of species above which read on the elected working Example 1.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Hamilton whose telephone number is 571-272-1331.

The examiner can normally be reached on Monday through Friday 9:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia H Kelly can be reached on (571) 272-0729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



CYNTHIA HAMILTON
PRIMARY EXAMINER

Cynthia Hamilton
Primary Examiner
Art Unit 1752

September 3, 2004

CYNTHIA HAMILTON
PRIMARY EXAMINER